ZTE Mini PCI-E Module Development Board User Manual

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ZTE Corporation

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With strong technical force, ZTE Corporation can provide CDMA/GPRS module customers with the following all-around technical support:

1. Provide complete technical documentation;

2. Provide the development board used for R&D, test, production, after-sales, etc.;

3. Provide evaluations and technical diagnosis for principle diagram, PCB, test scenarios;

4. Provide test environment;

ZTE Corporation provides customers with onsite supports, and also you could get supports through telephone, website, instant communication, E-mail, etc.

The module website module.ztemt.com.cn provides the relevant industry information and module technical documentation. The authorized module customers could download the latest technical documentation for our website. If you have more requirements, you could send an E-mail to module@zte.com.cn. You can also call us at 0755-86360280 for more supports.

Preface

Summary

This user manual applies to ZTE CDMA and GSM modules. This manual helps the users know how to use ZTE CDMA and GSM module's development board.

Target Readers

- System designing engineers
- Hardware engineers
- Software engineers
- Test engineers

Brief Introduction

This manual contains 8 chapters. See the table below:

Chapter	Contents
错误！未找到引用源。. General description	Introduces the features, function diagrams and relevant technical documents of Mini PCI-E module's development board.
错误！未找到引用源。. Descriptions of each part	Introduces the layout diagram and each function module of the development board.
错误！未找到引用源。. Test environment	Introduces the test environment of the development board.
错误！未找到引用源。. Test procedure	Introduces the test procedure of the development board.
错误！未找到引用源。. Hyper terminal configuration procedure	Introduces the configuration procedure of the hyper terminal.
错误！未找到引用源。. Location diagram of the module's development board	Introduces the location diagram of the module's development board.
7. Principle diagram of the module's development board	Introduces the principle diagram of the module's development board.

Update History

Document V1.0 (**July 6, 2010**)

The document is formally released for the first time.

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1 General Description

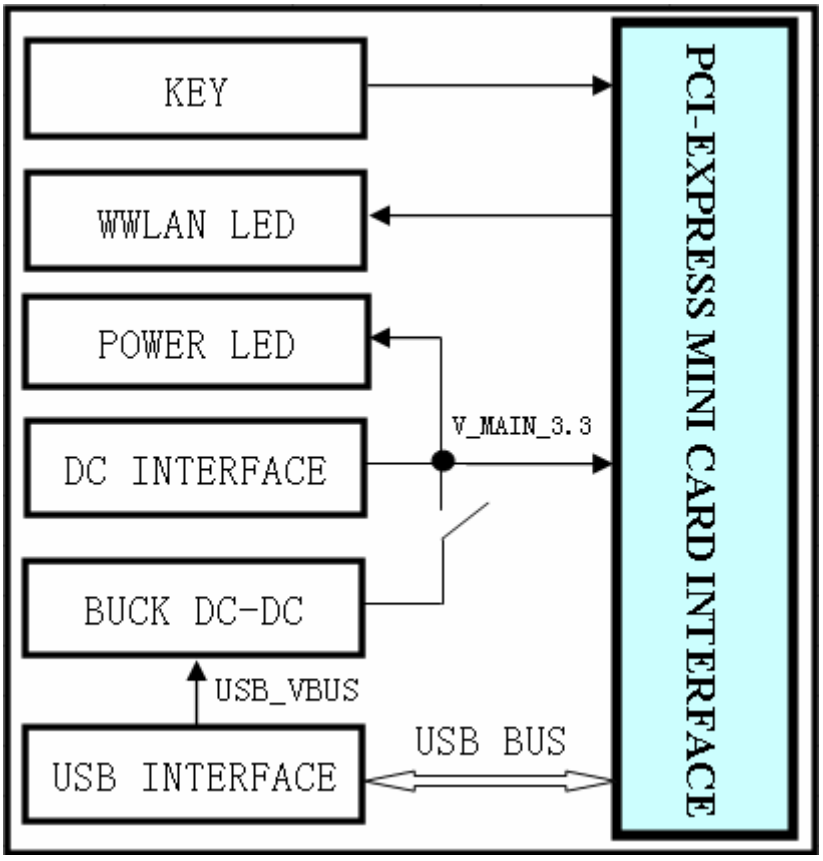
1.1 Features

The development board is designed for the purpose of testing ZTE CDMA Mini PCI-E module. Through this board, the users can test the modules with the same kind of interface provided by ZTE Corporation. Meanwhile, in order to consider the varieties of user power supply, we have designed power LED, RF LED and power toggle switch on the development board. The users could adopt different power supply methods through this board, and at the same time know about the work status of the development board through the LEDs.

1.2 Function Diagrams

The development board provides the following basic functions: power interface, USB interface, LED indicator, keys and test points. See the function diagrams in figure 1-1:

Figure 1-1 Function Diagram of the Development Board



1.3 **Relevant Documents**

- Modules Selection Guide
- 《AT Command Manual for ZTE Corporation's MC2718 Modules》
- 《ZTE MC2718 Module Hardware Design User Manual》

2 Descriptions of Each Part

2.1 Layout Diagram

See the layout of the module's development board in figure 2-1.

Figure 2-1 Layout Diagram of the Development Board

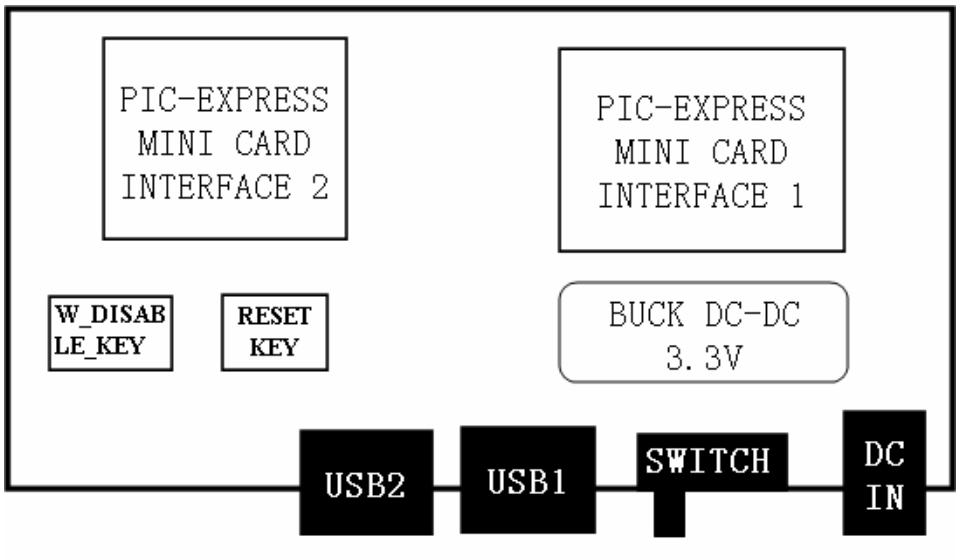
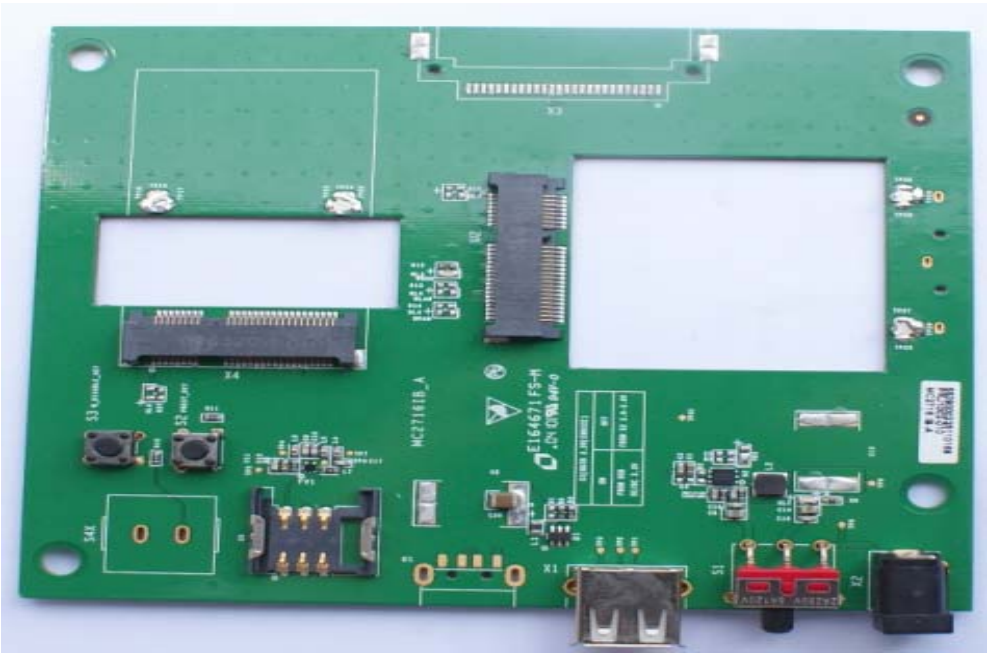


Figure 2-2 Actual Object of the Development Board



2.2 Descriptions of Functions

1）Power and Reset

The users could power the module's development board in the following two methods:

1. supplied by the external power 3.0-4.2V DC IN; 2. supplied by 3.3V converted from USB_VBUS_5V through BUCK DC-DC. The users could switch between these two methods through the SWITCH. The Power LED will be ON for either of these two power supply methods.

At the same time, a reset key will be provided on the development board; and the users could press the key to reset the module as there is something wrong with the module.

2）UIM card interface

As a standard communication module, it must support UIM/SIM card. Therefore, a detailed test on UIM/SIM card is necessary during the test phase in order to test the integrity of the module functions. UIM/SIM card is provided on the test board. The location number of the card interface is X5 and the card socket is no need for built-in UIM modules.

3）LED

The development board provides the following LED to indicate the module's status (HL2 needs software support)

- HL1: Power LED; this LED is ON, which means the power is normal.
- HL3: RF LED; this LED is ON, which means the RF is normal.

4）USB interface

开发板接口对外提供 USB2 接口，在测试板上，USB2 接口的位号为 X1。

5) Test points

There are 40 corresponding test points at the module's 40PIN connector for the users to test the module's work status. The test point's location number is T1.

As shown in figure 2-2, see the test point diagram and the common test point's signal name:

TEST POINT SN.	DEFINE
TP1	USB_D+
TP2	USB_D-
TP3	V_USB_5.0V
TP4	UIM_CLK
TP5	UIM_VCC
TP6	UIM_RESET
TP7	UIM_DATA
TP8	V_DC_IN
TP9	V_MAIN_3.3V
TP31	GND

3 Test Environment

The module's test environment is composed of the development board's accessories and the computer, and the accessories include: the development board, module, linear power (typical output

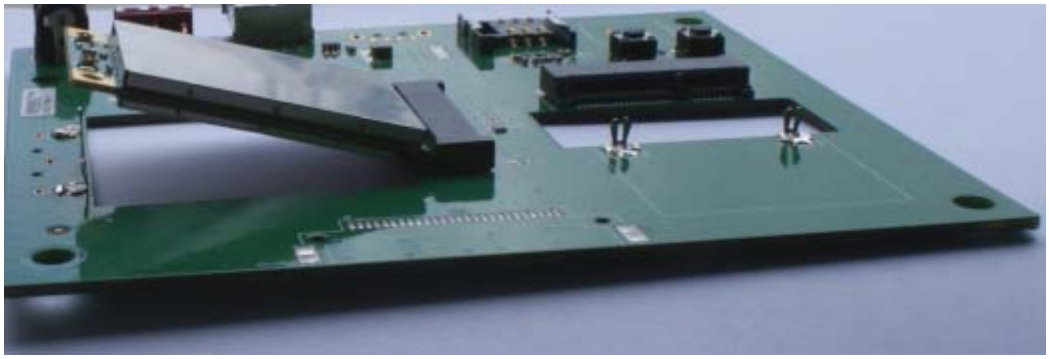
DC 3.3V, 1500mA), standard 4-core USB duplex extension cable, antenna and RF transfer feed. The optional users need prepare SIM card or UIM card themselves.

The development board is used for module's power supply and signal educe, and the linear power or USB 5V power is used to provide the power required by the module. The module's required power is 3.0V-4.2V and connected to the module through the development board. The computer is used to perform AT commands communication with the module through COM port or USB port. The connections of each part should follow the design method of the actual development board.

4 Test Procedure

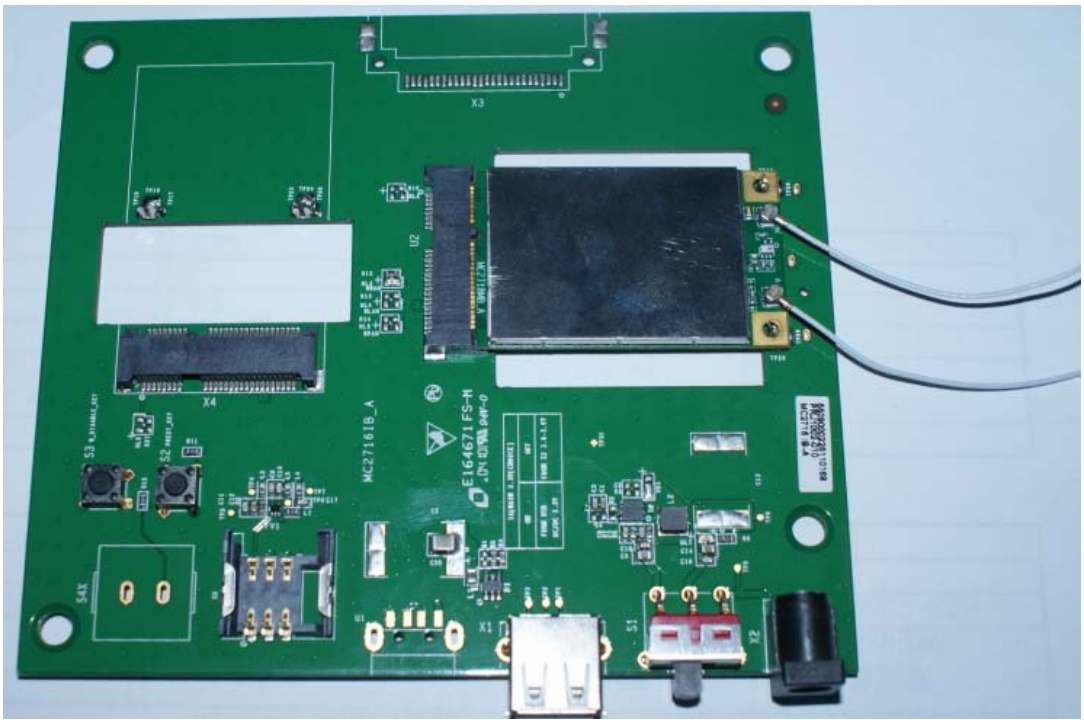
Take CDMA module for example:

1. Insert the module into the development board, as below:

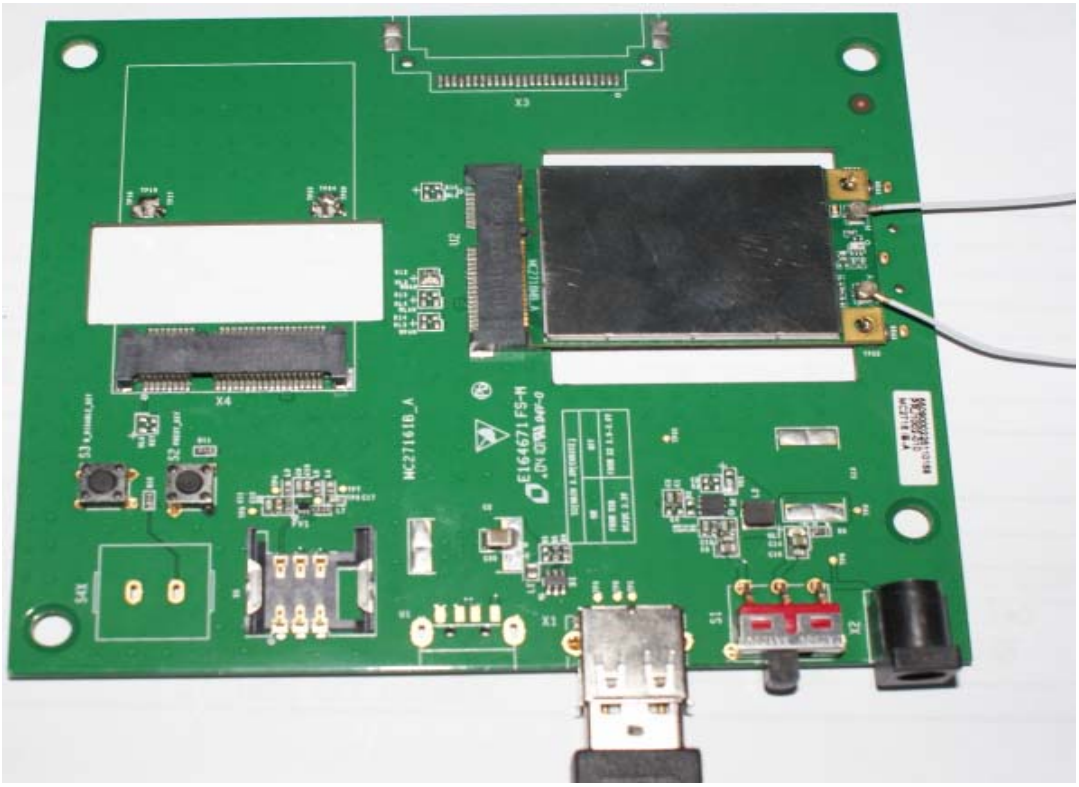


2. Press down the module and fasten with the positioning column on the development board, shown as below:

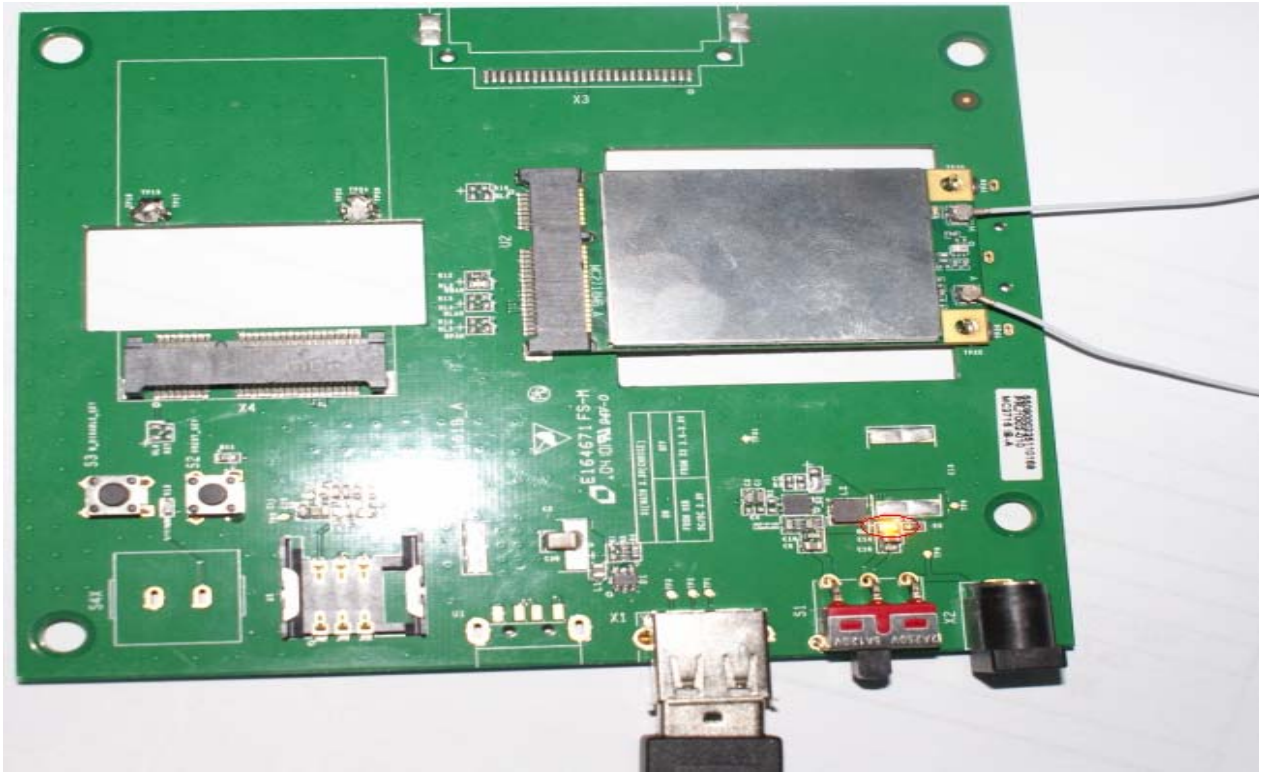
3. Test the connection main antenna and sub antenna according to the actual situation, shown as below:



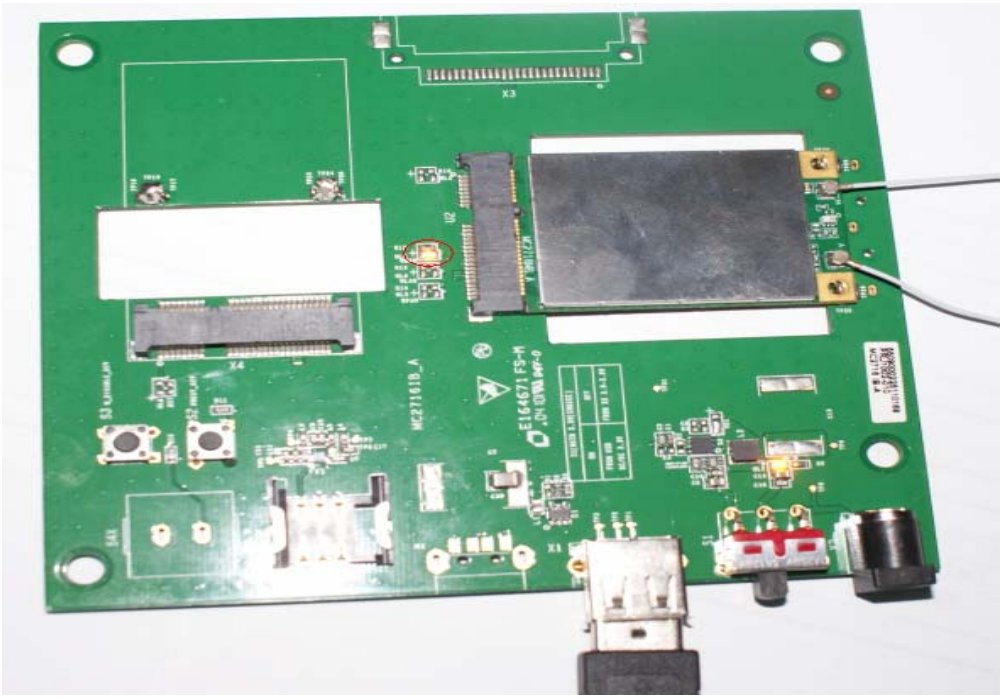
4. Connect the USB cable as below:



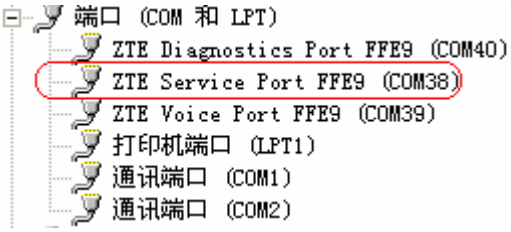
5. Install the module's driver at PC end, insert the USB into the PC and toggle the SWITCH to the left, at this moment, if the power LED lights up, this means the power is normal. See the figure below:



6. After about 10 to 15 seconds, HL3 LED shall light up if RF lock is completed; it means standby if HL3 LED is always on, and means there is EVDO data service if the LED flashes. See the figure below:



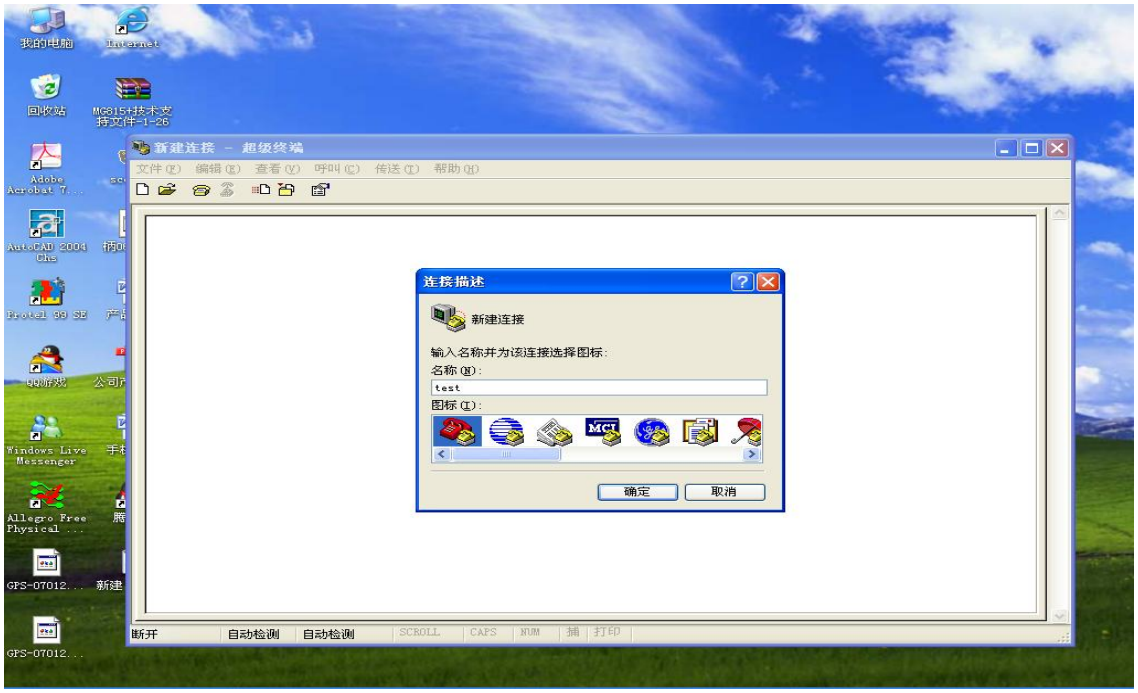
7. For the modules requiring no UIM card, please do not insert UIM card.
8. Open the corresponding COM Port (baud rate 115200, 8 data bit, 1 stop bit, no parity bit checking, select Service Port and perform AT command test after setting.)



5 Hyper terminal configuration procedure

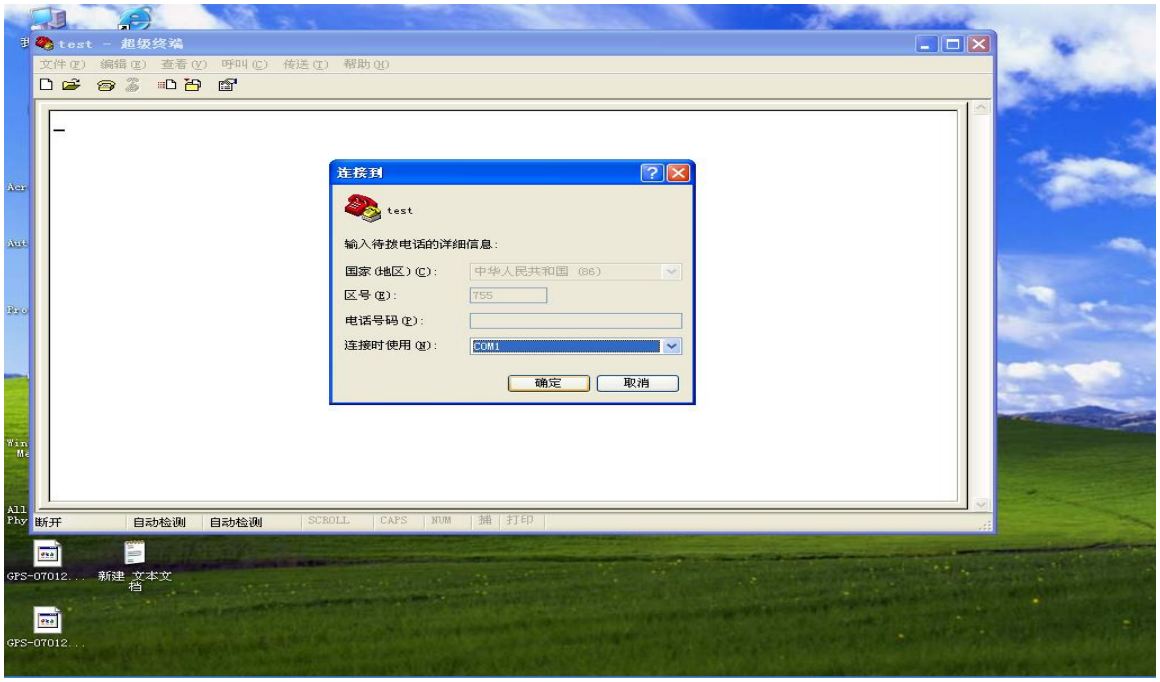
1. Connect the relevant USB port to the PC, insert the module and antenna, and then turn on the power switch on the development board.
2. Create a new hyper terminal and input the item's name, as shown in figure 6-1.

Figure 5-1 Create new hyper terminal



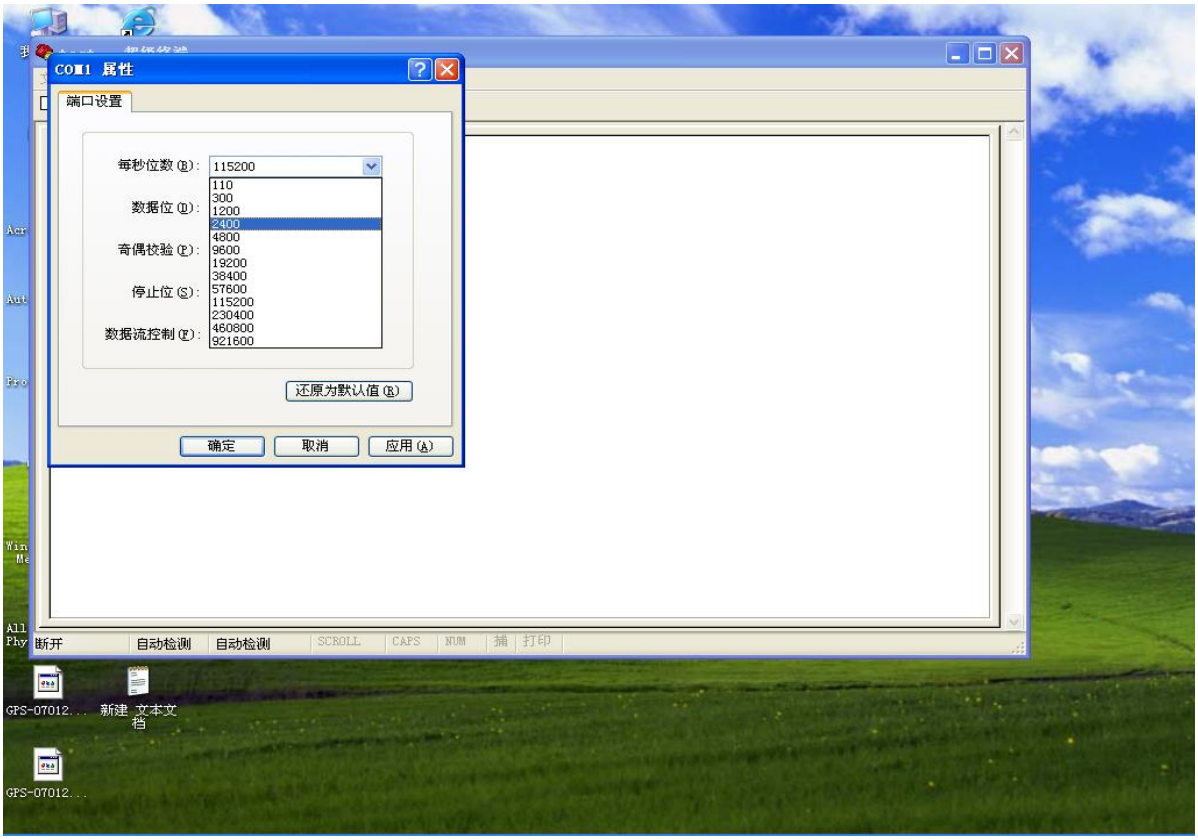
3. Set the relevant Service Port, as shown in figure 6-2.

Figure 5-2 Set relevant test port



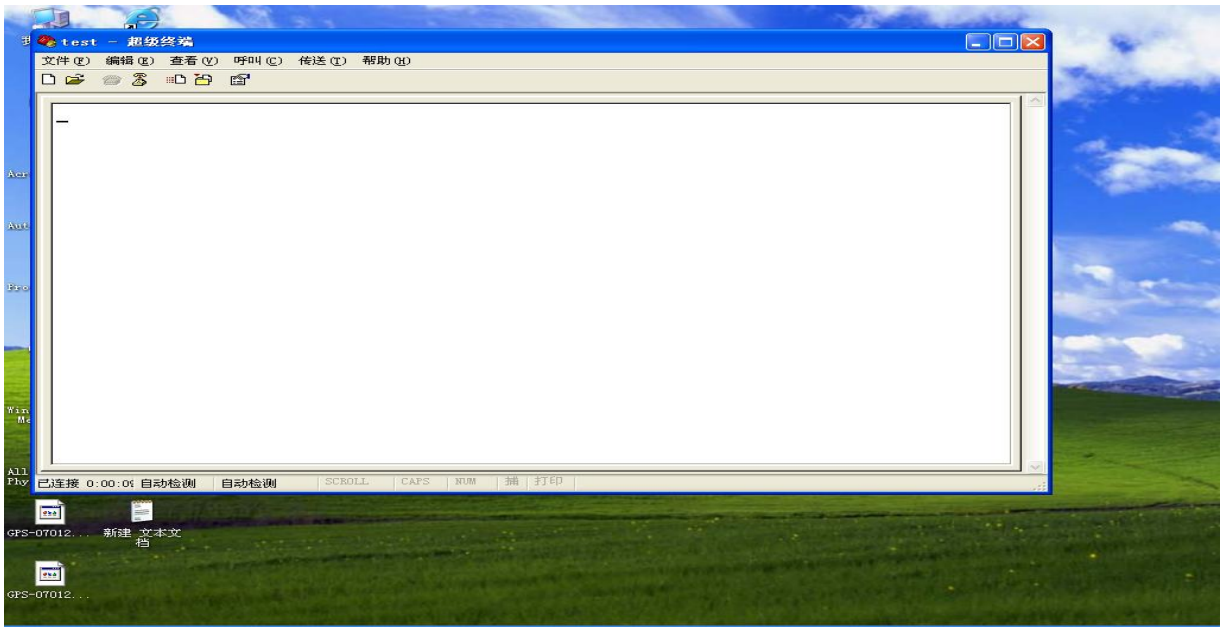
4. Configure Port parameters (data rate, communication format, flow control method, etc), as shown in figure 6-3.

Figure 5-3 Configuration Port Parameters



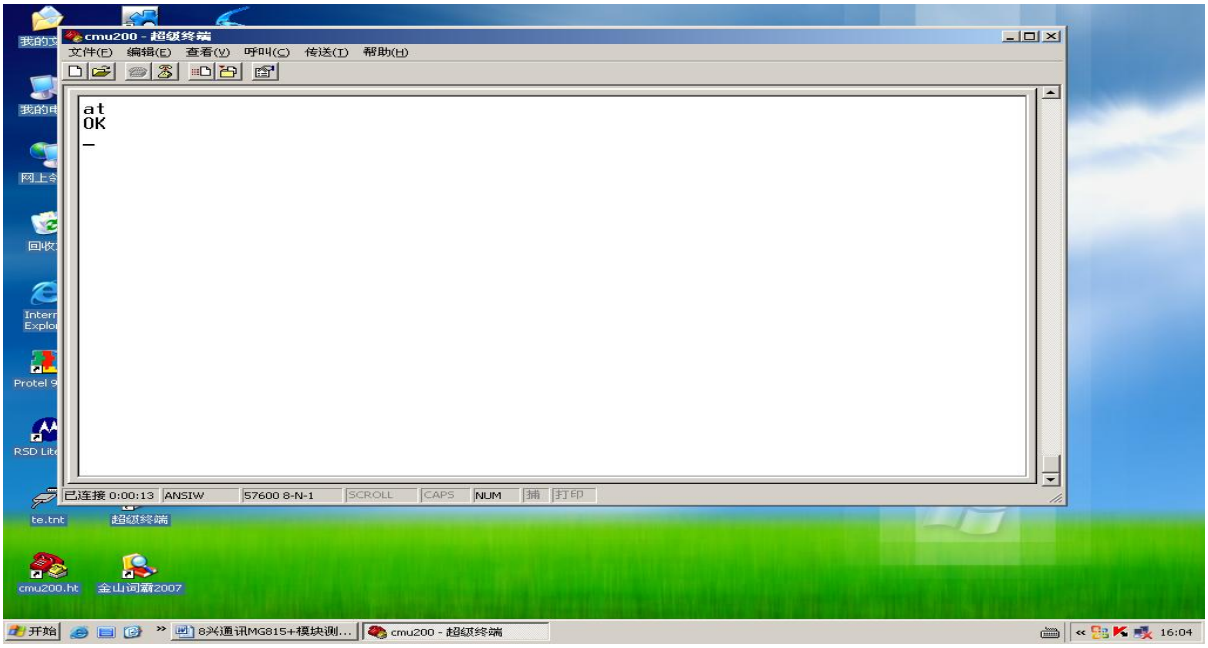
4. Activate COM port after configurations, as shown in figure 6-4.

Figure 5-4 Activate COM port

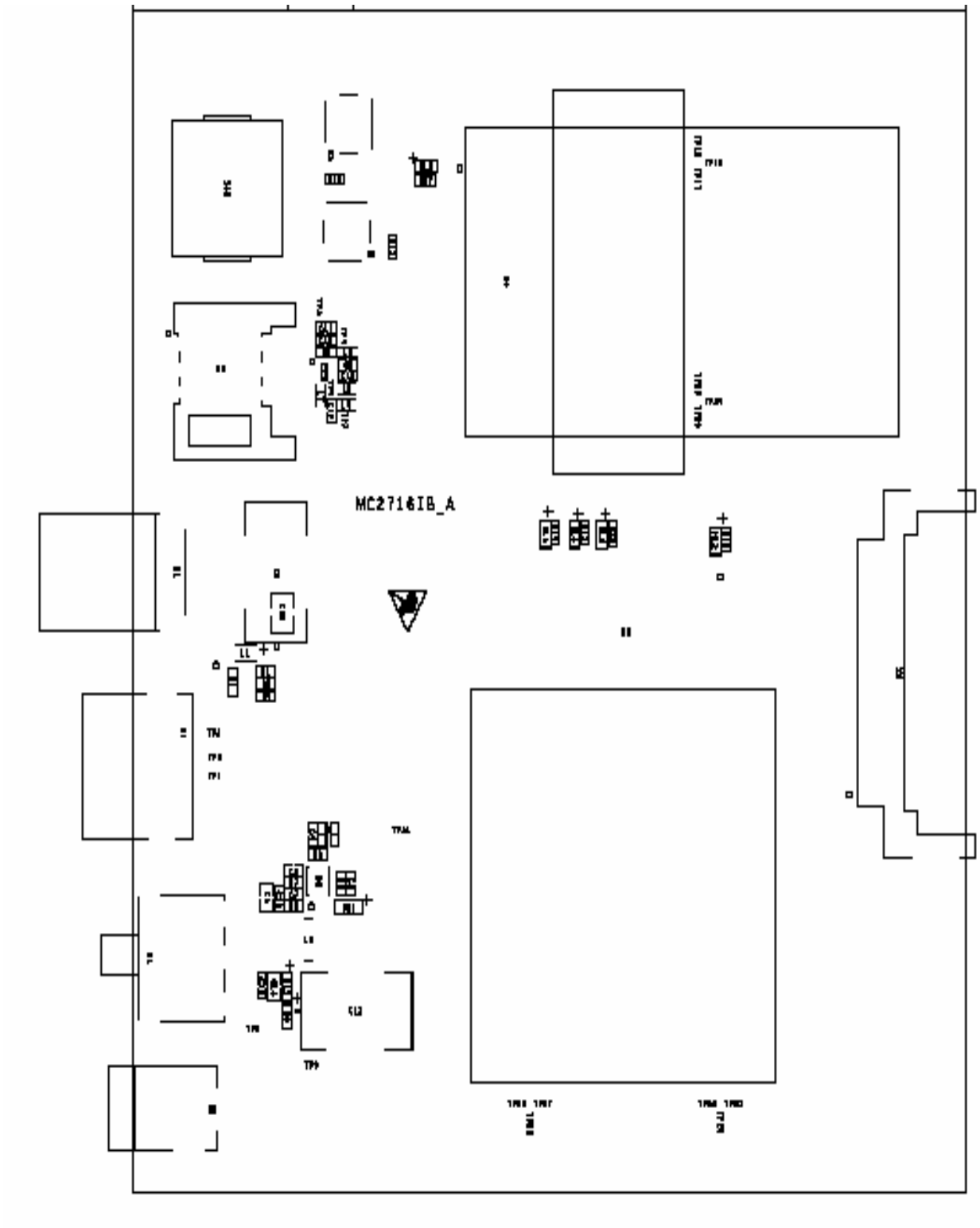


5. Input AT command, press carriage return and click “OK”. After setting, you could use the hyper terminal as a test tool, as shown in figure 6-5.

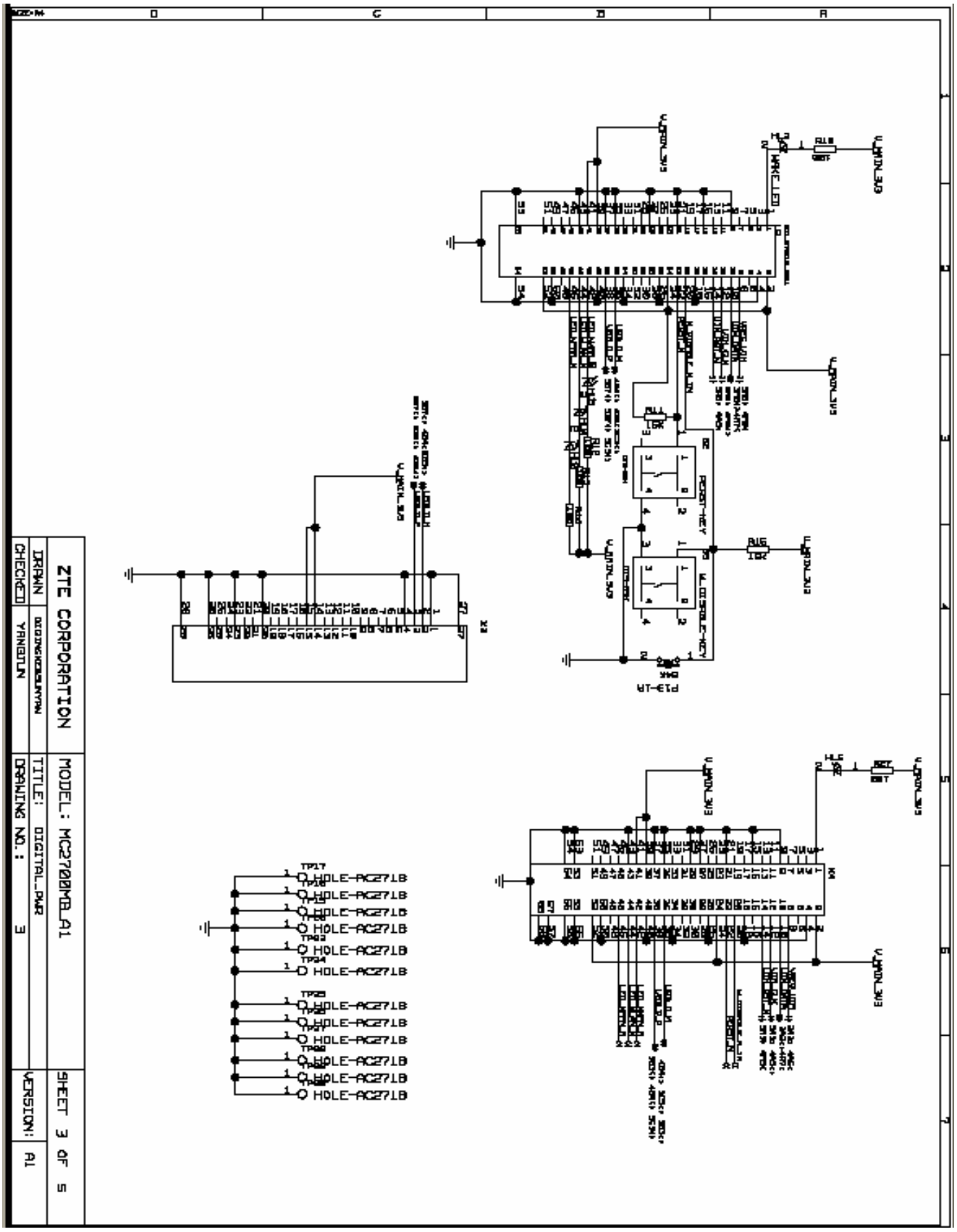
Figure 5-5 Success Diagram

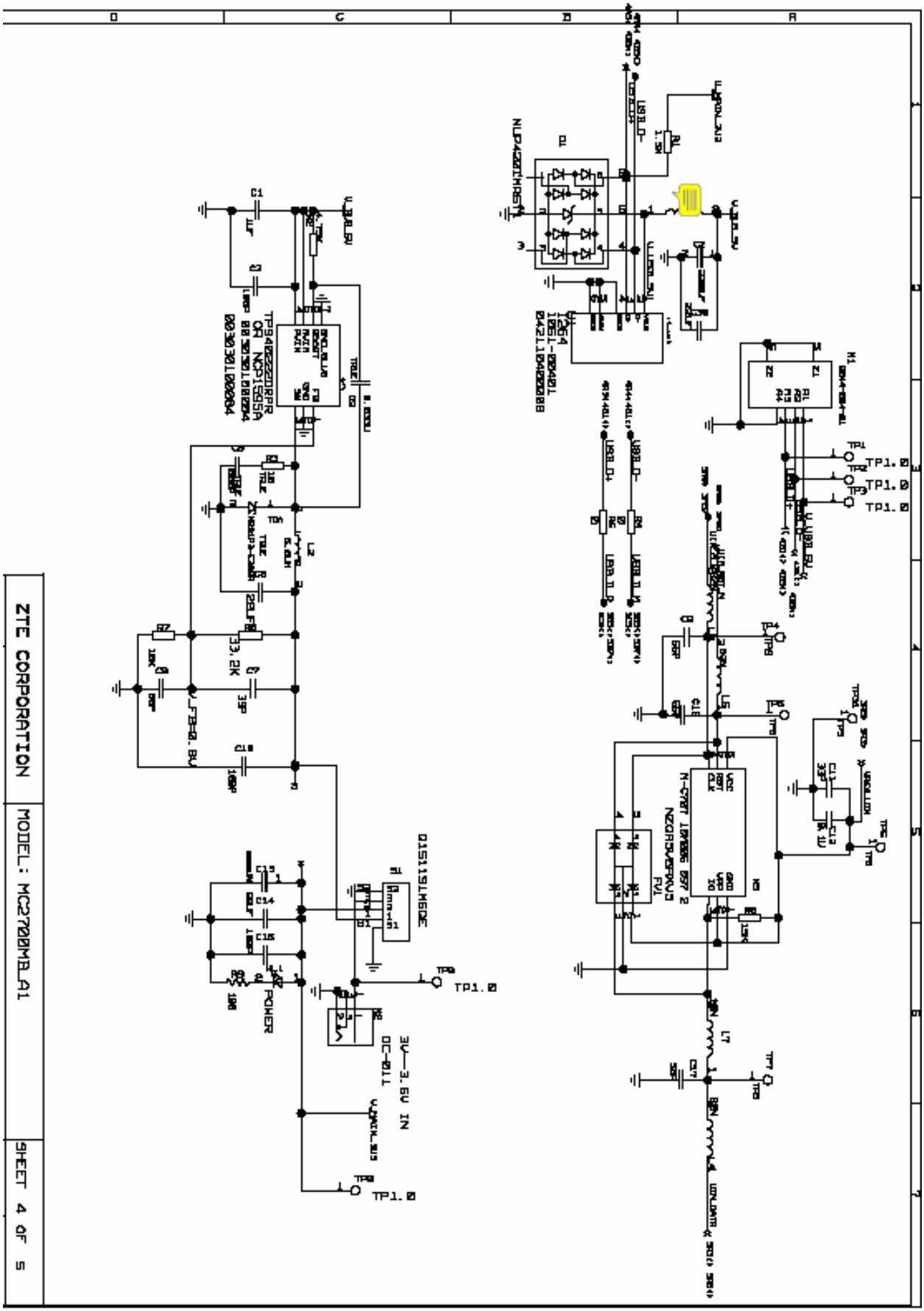


6 Location Diagram of Module's Development Board



7 Principle Diagram of Module's Development Board




ZTE CORPORATION
MODEL: MC2700MB_A1
SHEET 4 OF 5
3V—3.6V IN
POWER